

CLAIM AMENDMENTS:

Please cancel Claims 19-24, 26-27, and 31-32, and amend Claims 25, 28 and 30, as follows.

1.-24. (Cancelled)

25. (Currently Amended) A solid-state image pickup apparatus comprising:

- a plurality of converging lenses for converging incident light thereinto;
- a pixel group including a plurality of pixels each of which ~~converts~~ includes a photoelectric conversion element for converting the incident light from the converging lens into an electric signal; and
- a plurality of opening areas through each of which the light from the converging lens is coupled to the photoelectric conversion element,

wherein at least the pixels positioned at peripheral positions of the pixel group are arranged so that positions of the converging lenses and the opening areas are shifted toward the center of the pixel group more than the corresponding photoelectric conversion elements, and a center of gravity of the opening areas are shifted toward the peripheral portion less than the corresponding photoelectric

conversion elements, and

wherein each of the plurality of pixels has a structure so that an optical axis of the light incident from the converging lens passes through a center of gravity of a light-receiving surface of the photoelectric conversion element and a center of gravity of the opening area.

26.-27. (Cancelled)

28. (Currently Amended) A solid-state image pickup apparatus according to Claim 26 comprising:

a plurality of image pickup areas each of which includes photoelectric conversion areas arranged two-dimensionally;

image pickup lenses provided corresponding to the plurality of image pickup areas respectively;

microlenses corresponding to the photoelectric conversion areas respectively, each of which is arranged between the image pickup lenses and the corresponding photoelectric conversion areas to converge light; and

opening portions provided correspondingly to the photoelectric conversion areas respectively, through each of which the light is incident onto the corresponding photoelectric conversion area.

wherein in a peripheral area of each of plurality of image pickup areas, positions of the microlenses and the opening portions are shifted toward the center of each of plurality of image pickup areas more than the corresponding photoelectric conversion areas, and

wherein in the peripheral area of the image pickup area, the position of the microlenses are shifted toward the center of the image pickup area more than the corresponding opening portions.

29. (Previously Presented) A solid-state image pickup apparatus comprising:

a plurality of image pickup areas each of which includes photoelectric conversion areas arranged two-dimensionally;

image pickup lenses provided correspondingly to the plurality of image pickup areas respectively;

microlenses for converging light, arranged between the image pickup lenses and the photoelectric conversion areas correspondingly to the photoelectric conversion areas respectively; and

opening portions provided correspondingly to the photoelectric conversion areas respectively, through each of which the light is incident onto the corresponding photoelectric conversion area,

wherein color filters of a same color are arranged in each of the plurality of image pickup areas so that the color filters of different three colors are arranged in the plurality of image pickup areas respectively,

wherein in a peripheral area of each of the plurality of image pickup areas, positions of the microlenses and the opening portions are shifted toward the center of each image pickup area more than the corresponding photoelectric conversion areas, and

wherein shift amounts of microlenses with respect to the corresponding photoelectric conversions areas differs between at least two of the plurality of image pickup areas wherein the color filters of the different colors are arranged respectively.

30. (Currently Amended) A solid-state image pickup apparatus comprising:

an image pickup area including photoelectric conversion areas arranged two-dimensionally;

microlenses for converging light, formed on a layer evened by a CMP process, and arranged between an image pickup lens and the photoelectric conversion areas correspondingly arranged to each of the photoelectric conversion areas respectively; and

opening portions provided correspondingly to the photoelectric conversion are as respectively, through which the light is incident onto the corresponding photoelectric conversion areas,

wherein in a peripheral area of the image pickup area, the positions of the microlenses and the opening portions are shifted toward the center of the image pickup area more than the corresponding photoelectric conversion areas.

31.-32. (Cancelled)

33. (Currently Amended) A camera comprising:

a solid-state image pickup apparatus defined in ~~one of Claims 19;~~
~~26, Claim 29, 30 and 32;~~

a lens for focusing light onto the solid-state image pickup apparatus; and

a signal processing portion which processes a signal from the solid-state image pickup apparatus.